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Engine Bully

While practicing field carrier landings and take-offs, a pilot noticed his engine beginning to heat up and detonate. He continued his practice, however, and kept the cowl flaps closed at all times except during short periods while taking off. On the take-off after his sixth landing he noticed smoke and flames pouring from around the engine cowl. Complete power loss resulted in a forced landing in the water.



Grampaw Pettibone says:

The Trouble Board was very good to this pilot; they assigned him only 50 percent pilot error (25 percent poor technique and 25 percent carelessness). Experts around here are of the opinion that if more than 100 percent pilot error could be assigned, this pilot is entitled to it. To *unnecessarily* continue high engine operation (take-offs and climbs in this case) with an overheated and detonating engine indicates either negligence or ignorance. Also, it is not understood why, after realizing his cylinder head temperatures were excessive, this pilot kept his cowl flaps (cooling flaps) closed.

"Carrier bounce drill," with its demand for continual high power output at low air speeds, presents one of the toughest engine cooling problems in aviation. It is so tough, in fact, that it is not considered in the design of the aircraft because designers do not want to penalize the airplane for its original purpose, namely, combat. Consequently, even when pilots observe proper technique (i.e., cowl flaps open, gear up, flaps up while going around), it may be necessary to break out of the landing circle occasionally and fly around awhile, in order to keep engine temperatures within the required limitations.

Keep Posted

An N2T pilot landed in the grassy portion of a municipal airport and soon after contacting the ground his airplane struck two ditches and was practically demolished. The pilot had been operating from this field recently and should have been familiar with all



conditions of the airport. Furthermore, the grassy area on which he landed was restricted from all traffic and was so posted in the *Weekly Notice to Airmen*.



Grampaw Pettibone says:

Several other accidents indicate that the *Weekly Notice to Airmen* is not being given proper attention. You can't afford to overlook the fact that airports are frequently being repaired or under construction and that the *Weekly Notice* is the only means of disseminating such information. Cross-country pilots must keep posted through this bulletin. Even if you have been in a certain airport before, you should check for recent changes.

Don't Get Careless

The following is a representative group of accidents reported as being entirely due to pilot error, specifically "carelessness or negligence."

a. A pilot (1,831 hours) landed an F6F-3 with wheels up because he failed to go over the landing check-off list.

b. A pilot in an SBD-4 (274 hours) neglected to open his dive flaps before entering a dive. He started his pullout at 2,500 feet, but was still in a 45-degree dive when he hit.

c. The pilot of an SNJ-4 (900 hours) taxied into a gas truck while coming into the line. The gas truck was parked in an authorized area.

d. A TBM pilot (287 hours) wrecked his plane in a forced landing when he lost suction at low altitude. He had a

full tank of gas, but was not "gas conscious" and failed to shift in time.

e. An SNJ-3 pilot (230 hours) cracked up on his landing approach when his engine quit because he neglected to return his mixture control to full rich after having operated at altitude.

f. A pilot in an SNC-1 (1,844 hours) went into a severe groundloop when he prematurely unlocked his tailwheel during the landing run.



Grampaw Pettibone says:

It is tough to see experienced pilots pull dumb stunts like these. They show a lack of respect for the dangers of aviation. And all too often the pilot concerned doesn't live to profit by his careless mistake. These are grim warnings to maintain eternal vigilance.

Tower at Fault

When a TBF pilot lost throttle control near the station field, he notified the tower and requested permission to make an emergency landing. Permission was granted and runway designated. The pilot was cut out on his approach, however, by one of a group of planes practicing field carrier landings on this runway. The TBF pilot had enough altitude and power to go around again. On his next approach, after



he was all squared away with flaps and wheels down, he was again cut out by an airplane which landed and stopped on the runway. The TBF could not go around again and was forced to make a landing at the end of the runway, where it overturned and was completely demolished.



Grampaw Pettibone says:

The way this case was reported it looks like 100 percent tower trouble. Maybe they had never heard of "positive control."

Fouled Spark Plugs

A pilot was forced to cut his gun when his engine coughed and sputtered during the take-off run. He was unable



to stop before reaching the end of the runway, with the net result that both airplane and engine had to be given a major overhaul.

The pilot's statement indicated that he had not turned up the engine to take-off power before starting his run.



The Trouble Board gave as its opinion, "That malfunctioning of the engine was due to fouled plugs; and further, that this condition would have been apparent had the pilot turned up the engine to take-off power before commencing his run."

► **COMMENT**—Fouled spark plugs continue to cause numerous accidents similar to this. Most of them are due to carelessness and faulty technique on the part of the pilot. The following paragraph from the new BuAer Manual (now under revision) is quoted for information and guidance on this subject:

"When spark plugs are fouled it is frequently the fault of the pilot. Fouled spark plugs may result from abuse of an engine or improper handling procedure either in taxiing or in the air, however well the engine may be adjusted. The normal procedure for checking magnetos is not sufficient to assure clean spark plugs, particularly when the check is made some time previous to actual take-off. Prolonged idling will often cause overheating as well as fouling of spark plugs.

"There is nothing to prohibit the operation of any engine on both magnetos at maximum permissible manifold pressure and rpm for a few seconds on the ground to check engine performance. Therefore, the highest power run-up practicable under the operating conditions encountered shall be made before take-off, during which time care should be exercised not to exceed limiting engine temperatures. If the engine has idled for a long period before take-off, it is advisable to turn up part throttle for approximately 20 seconds to clear the spark plugs before the high power run-up.

"Prolonged glides with completely closed throttle should be avoided. In a glide an engine should be kept as close as possible to the normal operating temperature, otherwise abnormal cooling will cause contraction of the piston and result in oil pumping and fouled spark plugs. The throttle should be repeatedly opened to clear out the cylinders and the temperature controlled by the use of the adjustable cowl flaps or by proper adjustment of engine speed."

Security Sense

Recently an F6F airplane crashed, having been involved in a mid-air collision.

The pilot, acting quickly, managed to get clear and parachute to safety. The after part of the airplane, having been cut off at the baggage compartment, fell approximately a half mile from the rest of the plane. The pilot, landing safely, proceeded immediately to the tail section of the airplane. He removed the ABE and VHF equipment and returned with it to his station.



Grampaw Pettibone says:

This presence of mind is well worthy of note. It indicated that the pilot's thoughts were on his secret and confidential equipment even though his plane was a total wreck.

Use of Flaps

The pilot of a TBF-1 was on a familiarization flight, making touch-and-go landings on the station field. A normal landing with flaps was made and another take-off commenced. Flaps were retracted when the aircraft reached approximately 40 feet altitude. The airplane immediately started to settle and then dropped one wing. Upon striking the ground, it cartwheeled on its back and burst into flames.

It was the opinion of the commanding officer that the pilot had mistakenly raised his flaps instead of his landing gear.

► **COMMENT**—Another possibility is that the pilot deliberately retracted his flaps in an attempt to increase his speed. There is less drag when flaps are raised and hence the speed will increase. However, there is also a loss of lift when the flaps are raised, thus allowing the airplane to stall at a higher speed. While the decrease in lift is immediately effective, increased speed will only build up after an appreciable interval. It is for this reason that it is dangerous to retract flaps when near stalling speed. Sufficient excess speed to compensate for the decreased lift should be attained before flaps are raised.

See Technical Note 42-36, "Effect of Slots and Flaps in Take-Off and Landing," and also paragraph on "Use of Flaps" in BuAer Manual.



BEST ANSWERS

Quickies in Math

Pick the best choice to complete the statements below, then check your answers on page 40.

1. When one quantity is inversely proportional to another—

- ☐ a—a straight line graph shows the relationship between the two quantities
- ☐ b—a curved line graph shows the relationship between the two quantities
- ☐ c—as one quantity increases, the other quantity increases
- ☐ d—any value for the one quantity divided by the corresponding value of the other quantity gives a constant

2. The range angle for a bombardier is the—

- ☐ a—same as the angle of elevation of the airplane from the target
- ☐ b—same as the angle of depression from the airplane to the target
- ☐ c—angle formed by the vertical and the line of sight to the target
- ☐ d—angle formed by the horizontal and the line of sight to the target

3. The dimensions of a rectangle which most closely approximate "divine proportion" are—

- ☐ a—9' x 12'
- ☐ b—11' x 19'
- ☐ c—4' x 7'
- ☐ d—3' x 5'

4. Two objects on the ground are photographed from an airplane. If the focal length of the camera is fixed, doubling the height of the airplane—

- ☐ a—doubles the distance between the objects on the photographic plate
- ☐ b—halves the distance between the objects on the photographic plate
- ☐ c—has no effect on the distance between the objects on the photographic plate
- ☐ d—quarters the distance between the objects on the photographic plate

5. It is true for any fraction that—

- ☐ a—dividing the denominator by a number multiplies the fraction by that number
- ☐ b—multiplying the denominator by a number multiplies the fraction by that number
- ☐ c—increasing the denominator, numerator remaining the same, increases the fraction
- ☐ d—decreasing the denominator, numerator remaining the same, decreases the fraction